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MEMORANDUM FOR: Lt.Col. William J. Mulcahy
Department of Defense

SUBJECT: Intelligence on North Vietnamese Logistics for the Institute of Defense Analysis

The enclosed two reports, Transport Performance in North Vietnam, and Civilian Supply Requirements in Route Packages I, II, and III, are forwarded to you as CIA's contribution to a DIA report for the Institute of Defense Analysis.

[redacted] 25X1A

Chief
International Research Area, ER

Attachment:
As stated

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Transport Performance in North Vietnam

3 November 1967

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Transport Performance in North Vietnam

Introduction

Air strikes against the transportation system of North Vietnam during the past two and a half years have disrupted operations and created substantial losses of transport equipment and facilities. The problems in maintaining traffic movements have multiplied, but as a result of countermeasures, the use of alternate routes, and foreign assistance, North Vietnam's logistic capabilities have not been reduced. In fact there is probably more surplus capacity available today than existed at the start of the Rolling Thunder program. The Chinese Communists have aided in converting much of the railroad plant to dual guage, new roads have been built, and the inland waterways have been improved. (See map, Figure 1) The Chinese and other Communist countries have made available sufficient transport equipment and other materials to compensate generally for the losses sustained from air attacks. In addition, primitive transport has been organized to a greater extent than previously to replace modern transport for some short haul traffic and to assist in transshipping traffic around interdictions in the modern network.

Performance

1. Total ton-kilometer performance by modern transport is estimated to have declined each year of the air strikes, but during the first half of 1967 tons carried declined for the first time. (See Table 1) The 1963 and 1964 data are based on North Vietnamese announcements and the remaining data are OER estimates.

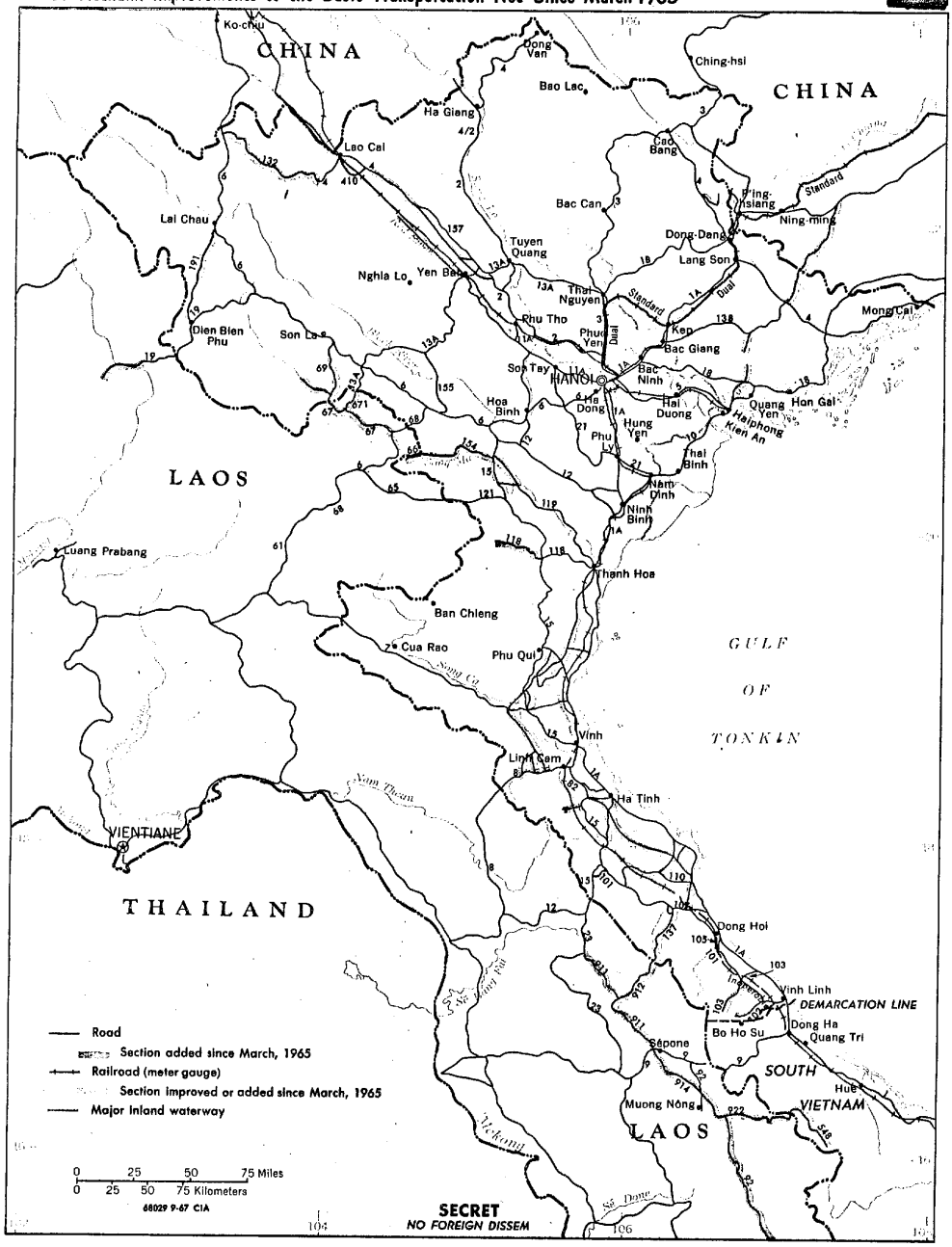
Table 1

North Vietnam: Transport Performance
1963-66 and January-June 1967

Million Ton-Kilometers

	1963	1964	1965	1966	First Six Months 1967
Railroad	847	927	770	620	305
Highway	164	179	200	200	100
Inland Water	448	450	540	590	225
Coastal Water	142	156	170	190	80
Total	1601	1752	1700 a/	1600	710

North Vietnam: Improvements to the Basic Transportation Net Since March 1965



	Million Tons Carried				
	1963	1964	1965	1966	First Six Months 1967
Railroad	3.86	4.13	3.7	3.3	1.6
Highway	6.71	7.16	7.9	7.9	3.9
Inland Water	6.56	7.01	7.7	8.5	3.2
Coastal Water	0.35	0.37	0.4	0.5	0.2
Total	17.48	18.69	19.7	20.2	8.9

a. Total does not add because of rounding.

2. The decline in performance in 1967 is the result of the fall off in demand for transport attributable to the attacks on power-plants and modern industrial plants during the early months of 1967. The decline is not the result of interdictions in the transport system because the capacity of nearly all transport routes continues to be greater than the volume of traffic moving on the routes.

3. The cessation of output in modern industry eliminated the need to ship coal and other raw materials for the plants, and the output of these plants no longer had to be moved. In addition, there was a 200,000-ton shortfall in the 1967 spring rice crop which also reduced requirements for transport. In total, the decrease in agricultural and industrial production by the end of June 1967 amounted to 7,700 tons a day. The decline in transport requirement is about 1.5 million tons carried during the first half of the year.

4. This decline was partially offset by the increase in the volume of foreign trade moved through Haiphong. This volume increased by about 1,300 tons a day over the 1966 level, and resulted in a total increase of an estimated 300,000 tons carried by the North Vietnamese transport system during the six months of 1967. Thus the net decline in tons carried was about 1.2 million ton. It is expected that the tonnage of goods moved will further decline in the last half of the year unless some of the industrial plants resume production or imports increase sharply during the final quarter.

5. Nearly all of the decline in transport performance during 1967 occurred in water transport, while rail and truck performance

continued at about the 1966 level. Most of the coal and other bulk raw materials no longer required had been moved by water transport and, to a small extent, by rail transport. These goods were moved mainly in the Haiphong area or through Haiphong to Hanoi and other industrial centers. Thus this reduction has released transport capacity, particularly barges and other watercraft, to facilitate the movement of the larger volume of imports from Haiphong.

Railroads

6. Performance on the rail lines has decreased from the high in 1964, and the relative importance of the various lines has changed considerably as a result of the US air war. The reduction in performance is attributed for the most part to the loss of apatite exports normally carried by rail to Haiphong and to the ending of rail transit traffic through North Vietnam.* This traffic was carried mainly on the Lao Cai line, which now carries only a small share of its former traffic.

7. Table 2 and the graphic, Figure 2 show the estimated average tons carried per day on each rail line during the first six months of 1967. These estimates show the relative importance of each rail line and are based on railroad car counts from photography with adjustment for the estimated volume of import traffic.**

Table 2

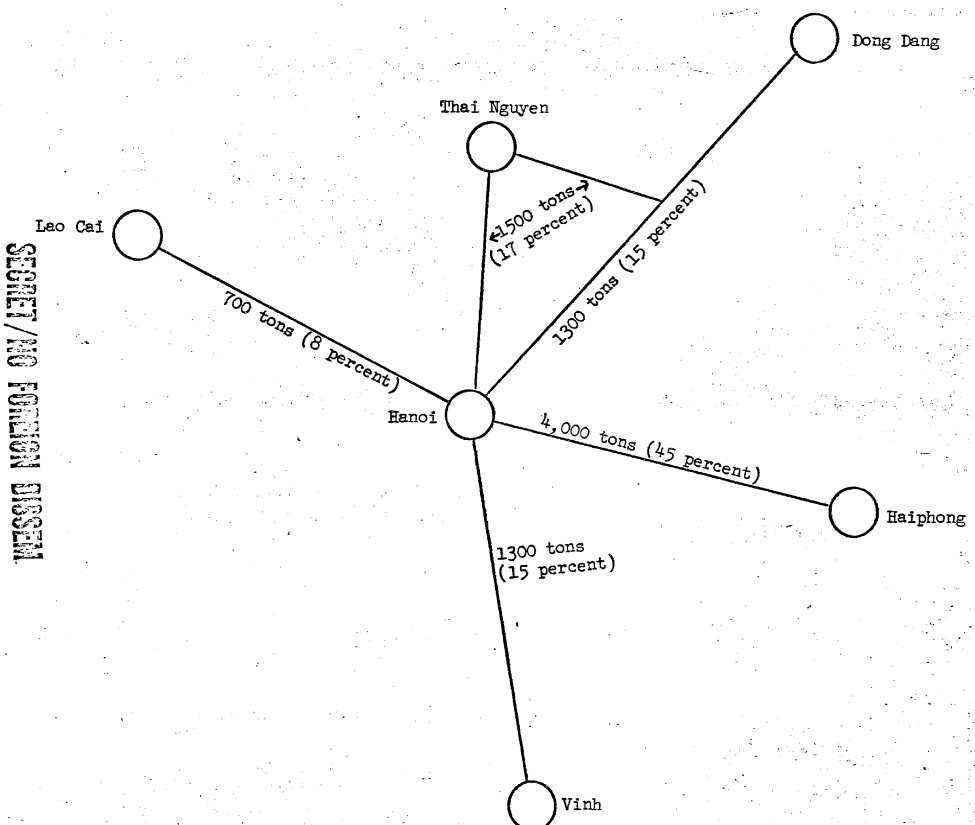
North Vietnam: Average Tons Carried Per Day by Railroad Line, January-June 1967

	Metric Tons Per Day	Percent of Total
Hanoi - Haiphong Line	4,000	45
Lines to Thai Nguyen	1,500	17
Hanoi - Dong Dang Line	1,300	15
Hanoi - Hanoi Vinh Line	1,300	15
Hanoi - Lao Cai	700	8
Total	8,800	100

* After the first attacks on the Lao Cai line took place the Chinese completed a rail line within China to connect Yunnan Province to the main Chinese rail system.

** Cars located in the Hanoi area were allocated to individual lines in accordance with the volume of import traffic estimated to be moving on the Hanoi-Dong Dang and the Hanoi-Haiphong lines.

Figure 2. Estimated Traffic Carried on North Vietnamese Railroads, in Metric Tons per Day January-June 1967



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8. The Hanoi-Haiphong line carries a greater share of the total tonnage moved by rail than it did in 1964 because of the significant increase that has occurred in the volume of imports arriving at Haiphong. The Dong Dang line, which formerly also carried Chinese transit traffic has been carrying a greater volume of import traffic. During the first half of 1967 import traffic on this line averaged about 1,150 tons per day, but without the need to import bituminous coal to produce pig iron at Thai Nguyen, traffic on this line will be considerably reduced in the second half of 1967 unless imports of other goods increase. The Thai Nguyen Lines, one of which has been built since the air attacks began, have gained importance as an alternate route to Hanoi from Kep. The rail line to Vinh, although heavily bombed and interdicted for through traffic, appears to be carrying a larger volume than in 1964 as more goods are moved south to support the war.

Other Modes

9. Very little information is available on the volume of traffic moved on individual highway, inland water, and coastal water routes. An area analysis indicates that the major portion of the traffic moved by these modes moves in the densely populated areas and centers of industrial and agricultural production. These areas are located in the Red River Delta and the coastal plains which together account for about one-third of the land area of North Vietnam and 90 percent of the population. The provinces south of Hanoi contain more than 60 percent of the population, but have relatively little railroad service. Highland areas and outlying areas near the borders have relatively few rail or inland water routes. The southern two provinces, for example, have about 6 percent of the total population, but no mainline rail service and only minor inland water routes. Thus inland water transport is used heavily in the delta area near Hanoi, but further south and west truck transport is the predominate form of transport. Coastal water transport supplements these forms of transport in coastal areas.

Highway

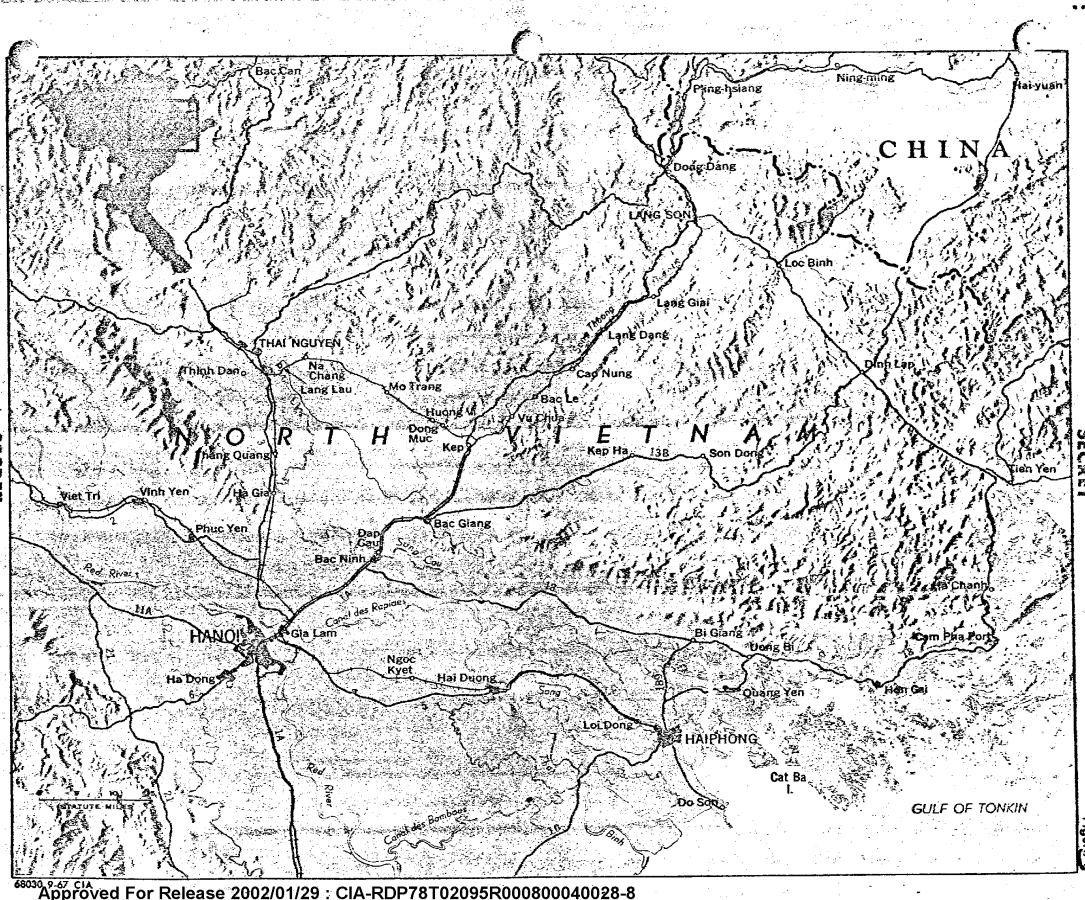
10. Although highway transport continues to serve mainly as short-haul feeder service to the railroads, trucks are being used increasingly to handle traffic problems resulting from rail interdiction and to keep supplies moving to the military forces in the outlying areas. The heaviest movement of traffic, however, continues to be centered around the two main cities of Hanoi and

Haiphong and other population centers in the Delta. The highest quality and probably the most heavily used road in the country is Route 5 between Hanoi and Haiphong, followed by Route 1A extending north and south of Hanoi. (See the map, Figure 3)

11. Roads in the northern part of the country that are important for military traffic are routes 3, 4, and 1B. Other routes particularly important for military transport are routes in Laos that have been developed as a major means of support for Communist forces in Laos and South Vietnam. Roadwatch teams on Route 6 in Samneua Province, Laos, have reported truck traffic moving into Laos at a rate that, if all the trucks carried cargo, could have delivered about 13,000 tons after losses* in the year ending 30 September 1967. Likewise traffic on Route 7 into the Plaine de Jarres could have delivered about 27,000 tons in the same period. Truck transport battalions also carried military supplies into the northern part of Laos on Routes 19 and 65, but the traffic count was so incomplete that a quantity estimate cannot be derived for these routes.

12. Communist truck traffic on Route 15 through Mu Gia Pass into the Laotian Panhandle is estimated to have delivered nearly 15,000 tons during the year ending 30 September 1967. No traffic count has been available for Route 137, an alternate to the Mu Gia route constructed since bombing began, but assuming that this route was used to the same proportion of its capacity as Route 15 was used to its capacity, about 9,000 tons could have been delivered. In addition it is estimated that about 3,000 tons were delivered mainly by trucks to the beginning of the trail systems into Laos. Thus transport routes in the North Vietnamese Panhandle carried a total of about 27,000 tons in the past year to be moved forward on Route 7 and a similar amount for the delivery into the Panhandle of Laos. Additional tonnage was moved south into the three southern provinces of North Vietnam. All modes of modern transport were probably used to move this tonnage south from the Thanh Hoa area; but in the area south of Vinh truck transport probably was used predominantly, principally via Routes 1A and 15.

* The annual tonnage given in this section are estimated by assuming that the daily average number of trucks observed moving into Laos on days that the road was observed was applicable to days of no observation. It is further assumed that each truck carried 3 tons of cargo. An arbitrary factor of 20 percent is deducted for normal losses in transit and losses due to air attacks.



Inland Waterways

13. The major inland water routes are the Cau Cam, the Song Thai Binh, the Red River upstream from the Nam Dinh area, and the canals that link these natural waterways. Between Nam Dinh and the Gulf of Tonkin the major transport route is the Nam Dinh Giang, rather than the Red River. No information is available to determine the amount of traffic moved on any one of these routes. However, the major traffic flow on the inland water system undoubtedly is the coal traffic that moves inland from the coast mostly through the port of Haiphong. There are two principal and numerous minor water routes connecting Haiphong with Hanoi. The southern route via the Canal des Bambous and the Red River has the largest capacity and is the most heavily used. The northern route uses the Song Thai Binh and Canal des Rapides. The relative importance of these routes is indicated by a count of the craft in the two waterways in two days in June and July 1967. The average number of craft sighted in the southern route on the two days had an estimated carrying capacity of 17,000 tons, while those in the northern route had 5,000 tons. All of this capacity was not engaged, however, in handling traffic between Haiphong and Hanoi. Some craft were inactive, some were empty, and some were serving intermediate points.

Coastal Water

14. Coastal water transport in North Vietnam consists mostly of comparatively long-haul traffic. The average length of haul in 1964 was about 380 kilometers. Pilot observations of water craft operating along the coast indicates that barges, coastal freighters, junks, and other small craft continue to operate to southern ports, mainly Ham Rong, Ben Thuy, Quang Khe, and Dong Hoi. The northern terminus of much of this traffic probably is Haiphong and adjacent areas.

SECRET/NO FOREIGN DISSEM

Civilian Supply Requirements in Route Packages I, II, and III (North Vietnam)

3 November 1967

SECRET/NO FOREIGN DISSEM

Civilian Supply Requirements in Route Packages I, II, and III (North Vietnam)

SUMMARY

The 2.5 million civilians located in Route Packages I, II, and III have a requirement for goods that must be brought in from outside — either imports or goods produced in the north — on the order of 80 to 100 metric tons per day. The largest item in this requirement is POL — about 40 metric tons per day. The population is largely rural and despite the disruption of the bombing, probably is nearly self-sufficient in terms of food.

Population

1. Of North Vietnam's total population of 18.5 million (mid-1967), about 2.5 million (13.5 percent) are located in the areas of Route Packages (RP) I, II, and III. This population is largely concentrated in the narrow coastal strip which extends from the heavily populated Red River Delta region to the DMZ. All coastal areas are occupied and population density varies between 10 and 200 per square kilometer. The highest population densities are found in the areas of the small cities of Vinh and Dong Hoi and the area surrounding Mui Ron. All of these densities are low compared to the Red River Delta.

Agriculture

2. Although living standards are low, the rural areas of North Vietnam are very nearly self-sufficient. The southern coastal strip included in RP's I, II, and III exchanges few products with the northern areas of the country, but probably had a small net export of foodstuffs — primarily fish and rice — before the bombing and received a small quantity of manufactured goods. Because the bombing has been concentrated in the southern RP's, fishing and agricultural pursuits have been more seriously disrupted there than in areas to the north. As a result, little or no food is shipped out of the area at the present time.

External Requirements

3. The external requirement of the civilian population of RP's I, II, and III is probably between 80 and 100 tons per day. These requirements consist primarily of POL and small quantities of other imported supplies such as agricultural tools and equipment, and textiles, clothing, and medicine. Of the total POL requirement of about 110 metric tons per day for the three route packages, only about 40 tons is consumed in the civilian economy. Little if any food is shipped into the area for civilian consumption. The sharp increase in food imports into North Vietnam during 1966 has probably been used to feed the urban population and military forces.

4. Because of the severity of the bombing in this area, some previous requirements are being forgone. For example, the 70-90 tons per day of coal formerly consumed by the Ben Thuy Thermal Power Plant at Vinh is no longer required and it is assumed that none of the meager quantity of fertilizer previously imported is being shipped into the region at present because of the importance of shipping higher priority goods.